DM# 73113

UTAH DEPARTMENT OF TRANSPORTATION

REQUEST FOR QUALIFICATIONS (RFQ)

UDOT
GENERAL ENGINEERING SERVICES
&
LOCAL GOVERNMENT POOL

The Pool is for small and simple transportation and construction-related service contracts under $600,000 (cradle to grave).

POOL PERIOD
JULY 1, 2007 - JUNE 30, 2010

Revised November 6, 2008

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POOL RFQ REQUIREMENTS SUMMARY

Open Pool Format
The Department has changed the format of the General Engineering Services and Local Government Pool (Pool) to an open format where consultants may submit Statements of Qualifications (SOQ's) at any time during a Pool period up to once per year.

The current Pool was set up originally with the intent to only open the Pool again near the expiration date of the Pool. However, the Department's funding for projects has increased significantly this past year and we anticipate it may increase in the future. Therefore, we are offering the opportunity to new consultants entering the Utah market to perform engineering services for the Department without waiting for an extended period for a scheduled opening.

Extension of Current Pool Period
The current Pool period was July 1, 2007 through June 30, 2009. The Pool period is now extended to June 30, 2010 therefore the current Pool period is now July 1, 2007 through June 30, 2010.

Any consultants who are currently qualified in a Work Discipline will not be required to resubmit their qualifications until the new pool is advertised for the next pool period of July 1, 2010 through June 30, 2013. The advertisement for the next Pool period will be issued approximately February 2010.

Semi-annual Evaluation of SOQ's
SOQ's submitted will be evaluated on a semi-annual basis by the Department. Firms will be evaluated to determine whether they are qualified in specific work disciplines based on work discipline specific SOQ's.

Any SOQ's received by **11:00 a.m. on March 31st and September 30th** will be evaluated during the months of April and October respectively. If considered qualified, the consultant will be eligible to be selected on May 15th and November 15th respectively subject to the financial screening process.

Schedule of Deadlines
March 31, 2009 at 11:00 a.m.
September 30, 2009 at 11:00 a.m.

No SOQ's will be accepted for the pool period of July 1, 2007 through June 30, 2010 after the September 30, 2009 11:00 a.m. deadline. The RFQ for the new pool period of July 1, 2010 through June 30, 2013 will be advertised in approximately February 2010 with a new deadline in April 2010.

Frequency of SOQ Submittal
A consultant may submit an SOQ for any given Work Discipline up to once per year. If a consultant submitted an unsuccessful SOQ in September 2008 and has had a significant change in key personnel, the consultant will be eligible to submit a revised SOQ for the September 30, 2009 deadline.

Pool Project Locations
Various locations statewide

Sources of Funding
Federal, Local, State, or Other

RFQ Administrator
Gaye Hettrick, Consultant Services Manager
4501 S. 2700 W., 4th Floor, South Side
Box 148490
Salt Lake City, UT 84119-5998
801-965-4639
ghettrick@utah.gov (email contact for questions)
GESOQ@utah.gov (email contact for submittal of SOQ's)

Electronic SOQ Submittal Required

1) Submit an electronic PDF file of the SOQ by email to Gaye Hettrick, Consultant Services Manager, GESOQ@utah.gov. You will receive an email acknowledgement of receipt.
2) If for some reason you are unable to email your submittal, a CD with SOQ files delivered to Consultant Services will be accepted.

Financial Screening
The Department requires Consultants be Financially Screened prior to performing work for UDOT. If a Consultant is selected and has not been financially screened and approved within two weeks after selection, the Consultant will be disqualified unless the delay is due to problems or delays by UDOT. The time it takes a Consultant to complete the Financial Screening process varies and therefore the Department encourages Consultants to submit their *Financial Screening Application* at the same time as their Statement of Qualifications or before. Consultants may obtain the *Financial Screening Application* from the website http://www.udot.utah.gov/go/csforms. For questions, contact Consultant Services at 801-965-4138. A Consultant's Financial Screening status is effective for the period of one year from the time the Consultant is approved.

Consultant Services Electronic Notification Subscription Service
Please join the Consultant Services Electronic Notification Subscription Service. Consultants will only be notified of any updates or changes to this RFQ through this service. The website for subscribing is http://www.udot.utah.gov/go/subscriptionlist.

SOQ REQUIREMENTS SUMMARY

Preparation of SOQ's
Prepare Statements of Qualifications in accordance with Utah Department of Transportation SOQ Requirements Summary.

SOQ Sections
Each SOQ should contain the following sections:

1) Introduction Letter;
2) Firm Qualifications;
3) Key Personnel; and,
4) Project Experience.

Sections are not required to start at the top of a page. (NOTE: The Introduction Letter should not be submitted as a separate electronic file from the rest of the SOQ, it should be the first page in the electronic file.)

If the SOQ is for the Work Discipline Visualization, an additional separate submittal will be required, see "Visualization Work Discipline – Additional Requirement" below for further details.

Introduction Letter
An Introduction Letter is required for each SOQ. The letter will need to identify that the Consultant or Contractor:

1) Has read the RFQ;
2) Understands the acceptance and completion criteria, submittal and financial screening requirements;
3) Understands the Pool Project and Consultant or Contractor Caps/Limits;
4) Is willing to follow all state and federal contracting requirements; and,
5) Understands that policy & procedures & processes may change during the Pool Period and that UDOT will require Consultant and Contractor compliance that may mean proactive and positive behavior while change is taking place.

In addition, the letter is required to:

1) Include a **contact person and information** (name, title, office phone, fax number, address, email address, cell phone) in case our Pool Selection Team has questions about the submittal and as the contact on the qualified list;
2) Include in the upper right hand corner the **Work Discipline Name**. No page number is required on letter. The letter may only be **one-page** in length;
3) Disclose any debarment or license issues and/or investigations along with any UDOT Project Evaluations Received that included a score of zero or one in any category; and,
4) If the SOQ Work Discipline has sub-categories, identify which sub-categories the Consultant is interested in being considered for. The three Work Disciplines that include sub-categories are "Environmental/NEPA Document Preparation", "Intelligent Transportation Systems", and "Traffic Signals / Roadway Lighting."

Separate SOQ Submittal Required for Each Work Discipline
A separate SOQ submittal is required for each Work Discipline you are interested in submitting for. The **Work Discipline Name** should be clearly marked in the upper right hand corner of the Introduction Letter.

Visualization Work Discipline – Additional Requirement
In addition to the standard SOQ requirements, an SOQ submittal for the Visualization Work Discipline will require an additional separate submittal. The submittal should be one copy of a Video, CD, or DVD, with examples of your deliverables in 2-D, 3-D, or 4-D. The deliverables should be no longer than 5 minutes in length. This submittal should be delivered to Gaye Hettrick at UDOT Engineering Services, 4501 South 2700 West, Salt Lake City, UT 84119 (4th Floor south side of the Calvin Rampton Building) by the semi-annual deadline or the Consultant's Visualization Work Discipline SOQ will be considered non-responsive and will be disqualified.

SOQ Maximum Number of Pages
The maximum number of pages for each SOQ, not counting the one-page Introduction Letter, is **five (5)** for those Work Disciplines that have no Sub-Categories.

There are three Work Disciplines ("Environmental/NEPA Document Preparation", "Intelligent Transportation Systems", and "Traffic Signals / Roadway Lighting") that have Sub-Categories. For those Work Disciplines that do have Sub-Categories, the maximum number of pages is **seven (7)**, not counting the one-page Introduction Letter.

The maximum length of the Introduction Letter is **one (1)** page.

Any SOQ that exceeds the page-maximum will be considered non-responsive and disqualified.

SOQ Page Numbers
Every page shall be numbered consecutively, 1,2,3, ... 5. Please make this part of each page as a footer in the lower right hand corner. Do NOT count the Introduction Letter as page 1.

Page Footers
Page Footers are required on every page bottom right corner and must include the following information:

1) Consultant/Contractor Name (Individual or Firm);
2) Work Discipline Title; and
3) Page number.

Margins
One Inch Margins for all 5 or 7 pages (Page Footer information may be inside or outside of this boundary).

Color
Submittals should be in black and white (excluding letterhead).

Font
Size 11 or 12 is preferred.

Script
Arial or Times New Roman is preferred.

Page Size
8½ x 11

Design
Charts, graphs, pictures, tables are acceptable but will be counted as part of page requirements and shall meet the above requirements.

Penalty Points
The Department reserves the right (through Consultant Services and/or the Selection Teams) to assess one Penalty Point for each instruction violation in the SOQ Requirements Summary. Our goal is not to penalize any submittal just help standardize/streamline the Pool Review Process for the Pool Selection Teams.

POOL ACCEPTANCE AND COMPLETION CRITERIA

Contract Caps/Consultant Limits
It is the responsibility of all parties (UDOT, Consultants, and Local Governments) to make sure that each project seeking Consultant selection from the Pool meets the **Project Limit of $600,000** (cradle to grave) and the Consultant Pool Period Cumulative Cap of **$2,700,000 for Local Government Projects** and **$3,750,000 for State Projects**. No exceptions.

The Project Limit applies to any contracts written during the 2007-2010 Pool including already executed contracts.

The Contract Caps/Consultant Limits are subject to change. Consultant Services will be creating and implementing performance measures for consultant selection from the Pool in the near future. The performance measures will be developed to ensure UDOT Regions and Local Governments selecting consultants from the Pool distribute work among consultants such that diversity and growth of the pool of consultants qualified and capable of performing UDOT and Local Government work is encouraged.

Consultant Cumulative Cap Contingency Formula
A full twenty-five percent reserve of all open contracts in the 2007-2010 Pool will be maintained for potential modifications to those contracts in order to not exceed the Consultant Cumulative Cap. A contract will be considered closed in regards to the contingency formula if the Project Consultant Evaluation Form has been completed and submitted to Consultant Services **AND** the retainage release invoice has been submitted to and approved by the UDOT Project Manager and submitted to the Comptroller's Office for payment.

Work Disciplines
A Pool of qualified Consultants or Contractors (firms or individuals) has been and/or will be selected to cover each area of service (Work Disciplines) the Department deems necessary for upcoming projects. Project Managers are encouraged to use the 50% Scope of Work/Work Plan Rule which will help them determine what Work Discipline to check when selecting a Consultant.

Qualified Consultant Selections
UDOT Project Managers and Local Government Project Managers are encouraged to use a variety of Consultants for their Pool Projects. However, it is up to each Consultant or Contractor to market their skills and services directly to the Region Project Managers.

Prime Consultant Requirements
Pool Contract Language states that a Prime Consultant will perform **60%** of the total contract value. Any variation from this procedure will need to be noted in the UDOT's Project Manager Approval Memo so that the contract language may be altered.

Prime Consultant Pool Dollar Availability
All contract and modification costs (including subconsultant costs) will count towards the Prime Consultant's Cumulative Pool Dollars.

Consultant Selection
The selecting Project Manager (UDOT and/or Local Government) will make sure that each Consultant selected for a Pool Contract has consultant cumulative dollar availability prior to contacting the Consultant. This is done through the Contract Management System (CMS).

Contract and/or Modification Requirements
The Department requires standard contract and contract modification documentation. Any variation from this will require full justification in the Consultant's Work Plan and in the Project Manager's Approval Memo. Contract Modification requests are required to comply with the contract-cap and consultant cumulative-cap limits.

The Consultant/Subconsultant(s) submits the following items to the UDOT Project Manager for review and approval:

1) Executive Summary
2) Detailed Work Plan
3) Staffing Plan (UDOT Form Required)
4) Task Schedule/Deliverable Dates/Project Completion Date
5) Certificate of Insurance
6) Subconsultants shall be required to meet all contract document requirements, if the value of the subcontract is greater than or equal to $25,000. At a minimum for Pool Contracts, Consultant Services requires Subconsultants submit a "Letter of Engagement" to the Prime acknowledging project task responsibilities, deliverable dates, and a Cost Proposal. Please refer to 48CFR Part 15.404-3, Table 15-2 Part 15.408, if you need further information.

The **UDOT Project Manager** is required to submit the following documents to Consultant Services before a Pool Contract and/or Modification can be generated:

1) Scope of Work – Executive Summary
2) Independent Cost Estimate (ePM)
3) R-709 Form (Required for All State and Federal Projects / CMS Request)
4) ePM 505 Updated Screen Print
5) Financial Screening/Pool Dollar Availability (CMS Request)
6) Contract/Modification Approval (CMS Approval)
7) Consultant's Contract/Modification Package
8) LG Project Manager Review Memo (Approving Consultant, Selection Method, Cost Proposal Amount, and Completion Date).

Insurance Requirements
The Department reserves the right to require all Consultants and Subconsultant(s) selected for Pool Projects to meet certain insurance requirements. These requirements may change throughout the Pool period according to the need and direction of the Department. It is the responsibility of the Consultant to meet the insurance requirements of the Department. Insurance Waivers may be requested through the UDOT Project Manager in writing who will then submit the request to Risk Management and Consultant Services for approval.

Applicable Federal, State, and Local Regulations
It is the responsibility of Consultants and Subconsultants to know and understand state and federal contracting and project regulations, rules, policies and procedures. Consultants and Subconsultants shall conform to all state and federal requirements.

Authorization to Begin Work
Consultant Services is the only authorized agent to give a Notice to Proceed. This may come via e-mail or fax and will then be followed up with an official letter. Consultants may request an early Notice to Proceed with the UDOT Project Manager via email if a specific incident arises where UDOT needs to allow work to begin prior to a NTP. The UDOT Project Manager is then required to submit this request in writing justifying and supporting the request to the Consultant Services Manager. If an early Notice to Proceed is given, it will come from Consultant Services in writing with specific limitations and expectations for the Consultant and the UDOT Project Manager.

NOTE: Violation of authorization to begin work (Notice to Proceed) may result in non-payment of work performed, termination of an impending contract, or loss of federal funds, if applicable. Consultant billings shall not date prior to contract and/or modification execution date.

Consultant Personnel/Certification Requirements
The Consultant guarantees the Department that every individual working for them is qualified through training, experience, and appropriate certification for the tasks they will be assigned for a contract or contract modification. If the Department has determined that non-professional technical people who may work on projects for the Department must meet certain certification requirements it must be reflected in each SOQ that the Consultant has met this requirement.

Former UDOT Employees
If a firm lists a former UDOT employee on an SOQ who officially left UDOT employment prior to the date of submittal of the SOQ, the firm will not be disqualified. If the firm lists someone who has not yet left UDOT employment, even if the employee plans to retire or quit soon, the SOQ will be disqualified.

Training Requirements
Consultants and Subconsultants will be required to provide the Department any necessary training verification as deemed necessary. It is the responsibility of each Consultant to know what training will be required and when it is offered.

Payments and Retainage Fee
Unless specifically requested at the time a contract is initiated (by the UDOT Project Manager) or for on-call contracts, all contracts and modifications will have retainage in the amount of 5% deposited in a UDOT approved escrow account. Project Managers shall determine when partial and/or full retainage should be released to a Consultant. Consultant Services and the Comptrollers Office suggest that a project evaluation be executed (UDOT and Consultant Signature) prior to the written release of retainage request being submitted.

Project Evaluation Requirements
Consultant Services requires that UDOT Project Managers, Local Government Project Managers, and Consultants perform at least TWO Project Consultant Evaluations for each contract. Consultants are encouraged to initiate these evaluations if the UDOT or Local Government Project Manager has not. They are further encouraged to include them in the project schedule.

Debarment Certification
Federal Regulations require certification by prospective participants (including consultants, contractors, subcontractors, and principals) as to current history regarding debarment, eligibility,

indictments, convictions, or civil judgments. The selected Consultant will be required to certify in accordance with contract Standard Terms and Conditions on every contract. Consultants are required to disclose any current (last 2 years) debarment, license issues, and/or investigations information along with any UDOT Project Evaluations received that included a score of zero or one in any category in their Pool Introduction Letters.

Pool Debriefing Opportunities
Consultant Services will offer Consultant Pool Debriefs by email within 90 days of receiving an email request. Debriefing information will include 1) Discipline Scores and 2) Not Qualified ("0") Selection Team Reviewer Comments (see page 14 for details). This may be changed to meet the needs of the Department.

Disclosure and Disposition
Statements of Qualifications of successful Consultants shall be open to public inspection for a period of three years after the Pool selection is made. Once submitted, Statements of Qualifications become the property of Utah Department of Transportation and are treated as privileged documents (this includes scores and comments) and will be handled according to Department Policies.

Preaward Audit
In the event that a proposing consultant has failed to pay UDOT monies due to the Department for over payment on past projects, UDOT has the right to reject and/or disqualify the firm's Statement of Qualifications. Disqualification will be based on the audit findings, determinations, and recommendations made by the Department's authorized agent.

Technology Requirements
It is the responsibility of the Consultant/Contractor or Subconsultant to know what technology requirements are required when doing business with the State. The Consultant will be responsible for the accuracy of the translated data and therefore, may be required to reimburse the Department for any errors that have a direct cost to the Department. Technical and Standards support will be provided to the consultant through the Engineering Systems Section of the Information Systems Support (ISS) Division at UDOT. Questions or comments can be addressed to Craig Hancock, P.E., Director of Engineering Technology Services at the Utah Department of Transportation, 4501 South 2700 West, Salt Lake City, Utah 84119. You may email Craig at chancock@utah.gov or call him at 801-965-4865.

Quality Control / Quality Assurance
Reviews and Quality Assurance: All contracts require a quality control / quality assurance plan and checklist. For design projects specifically, the CONSULTANT shall deliver a project specific QC/QA plan that meets or exceeds the DEPARTMENT'S standard QC/QA plan located on the DEPARTMENT web page at http://www.udot.utah.gov/index.php/m=c/tid=650. If the CONSULTANT elects to use their own QC/QA plan, that plan shall, as a minimum, contain the requirements of the DEPARTMENT'S plan and be approved by the DEPARTMENT'S Project Manager. In addition to the QC/QA checklists and certifications, back up documentation of the QC/QA plan shall be maintained. The back up documentation shall include, but not be limited to the following items:

1) Check prints and calculations
2) Comment resolution forms
3) Written records of the findings of the Quality Control check

4) Peer review letters, memoranda, etc.
5) Any other correspondence regarding the Quality Control activities involving the task.

WORK DISCIPLINES

Work Disciplines			
1	Aerial Photogrammetry	15	Partnering Facilitation
2	Bridge Design	16	Pavement Design
3	Bridge Management / Asset Management	17	Planning
4	Constructability Review	18	Preconstruction Engineering
5	Construction Engineering Management	19	Public Involvement – Operations / Project / NEPA
6	Dispute Resolution Review	20	Research/Studies/New Development
7	Environmental/NEPA Document Preparation ***Sub-Categories**	21	Right of Way Engineering
8	Geotechnical/Hydrogeology	22	Schedule Analysis & Claims Review
9	Hazardous Materials / Waste Assessment and Remediation	23	Subsurface Utility Engineering
10	Intelligent Transportation Systems ***Sub-Categories**	24	Surveying / Mapping
11	Landscape Architecture	25	Traffic Signals / Roadway Lighting ***Sub-Categories**
12	Major Hydraulic Design	26	Value Engineering
13	Materials Testing	27	Visualization 2D/3D/4D
14	Minor Structure Design		

WORK DISCIPLINE
EVALUATION/SCORING CRITERIA

The General Engineering Services & Local Government Pool Discipline Selection Review Teams will evaluate and score all Statements of Qualifications in accordance with the criteria and rating scale below. (NOTE: It is not required to have headings on separate pages in the SOQ.)

Rating: **0** = Not Qualified **1** **2** **3** **4** **5** = Excellent

Heading	Criteria	Points Possible	Rating	Multiplier	Score
1	Firm Qualifications	**(5)**		**X 1 =**	
2	Key Personnel	**(10)**		**X 2 =**	
3	Project Experience	**(10)**		**X 2 =**	
Total Points		**25**			

Note: If a Selection Team Reviewer rates a Consultant **"Not Qualified = 0",** the Reviewer will be required to submit detailed comments on the Consultant's Individual Scoring Form. Comments will be given to the Consultant in their debriefing email.

Criteria Heading 1 – Firm Qualifications
Provide specific Consultant firm qualifications directly related to the "Work Discipline" you are submitting qualifications for, including both local and national (if applicable) qualifications. Particular emphasis should be placed on your firm's specific and unique strengths that show leadership, management, work quality, commitment, collaboration, and communication capabilities.

Criteria Heading 2 – Key Personnel
Provide specific experience of Key Personnel that your firm will utilize in the particular "Work Discipline" you are submitting qualifications for. Specific past experience related to education, expertise, leadership, management, and ability to collaborate and communicate should be emphasized.

Criteria Heading 3 – Project Experience
Provide specific project experience the firm has completed on transportation projects in the particular "Work Discipline" you are submitting qualifications for. Project experience must be work completed within the past five years and must include references.

WORK DISCIPLINE
DESCRIPTIONS/CERTIFICATIONS/OTHER REQUIREMENTS

Aerial Photogrammetry - #1

Provide aerial mapping services on engineering projects on an as needed basis under the direction of the Department's representative. Aerial mapping may include any or all of the following: digitized color or black & white aerial photographs, color or black & white orthographics. Aerial photogrammetry shall meet the latest ediction of requirements of the Mapping and Aerial Photogrammetry Guidelines and should be suitable for subsequent photogrammetric mapping. This area of work also includes obtaining information about physical objects and the environment through processes of recording, measuring and interpreting photographic images and electromagnetic energy in order to create and produce digital and planimetric data. It includes creation of digital orthophotography. It may include survey work necessary to establish reference points for photo control.

Bridge Design - #2

This category of work is defined as the production of competently engineered bridge plans that conform to the Department's design standards, including the Bridges and Structures Design Manual, and those of the FHWA. Consultants may provide engineering services to design, study, analyze or review complex structures of various types that may be required on a highway project or engineering study. This may include but not be limited to the complete design of bridges and other complex structures. Design will include applicable Accelerated Bridge Construction components. The analysis and designs shall be done in accordance with the applicable UDOT, Local Government, AASHTO, State and Federal requirements.

Bridge Management/Asset Management - #3

Work within this category is related to assisting in UDOT's overall bridge management efforts. This may include small to large projects, or individual tasks. Specific services may include but are not limited to bridge inspection, STIP Planning, Corridor studies, Hydraulic studies, deterioration modeling, cost modeling, database enhancements, training, minor plan package development, and technical support.

Constructability Review - #4

The Department is seeking qualified individuals or firms who can provide Constructability Review services to design plans going into construction. Integration of experienced construction personnel into the earliest stages of project planning as full-fledged members of the project team will greatly improve the chances of achieving a better quality project, completed in a safe manner, on schedule, for the least costs. Constructability optimizes the following major project elements from start to finish of the project: Overall project plan, Planning and design, Construction-driven schedule, Costs or estimates, Construction and major construction methods. Factors to be considered in a Constructability review/program may include the following: Managing the project, Project delivery system, Contracting strategy, Risk management, Work package breakdown, Labor plan, Access to site, Site layout, Sequence of design or construction, Rigging plan, Availability and procurement equipment and materials, Prefabrication, Preassembly, Modularization, Quality management, Materials management, Site facilities, Safety, Operability, and Maintainability.

Construction Engineering/Management - #5

All qualified Consultants desiring to provide Construction Engineering/Management services to the Department and/or Local Government may be required to provide the following prior to being selected for a project: 1) Training Certification Verification, 2) Conference Attendee Verification 3) Professional License (PE). Some tasks of Construction Engineering/Management are: 1) Continuous on site monitoring of the contractor's work, resolve any issues that arise, 2) Conduct all necessary meetings from the advertisement to the post construction conference, 3) Coordinate with UDOT and/or local government representatives on project issues, and 4) Monitor the contractor's work for safety, adherence to the traffic control plan, schedule, and compliance with appropriate plans and specifications related to the project. WAQTC Certified Personnel in AMRL Certified Labs may test all construction material. Consultants are responsible for entering quantities into the Department's Project Accounting System and therefore must have appropriate training prior to being selected for a project. It is the Consultant's responsibility to know what training and certification is necessary and when the Division for this discipline offers it. A new Construction Engineering Management (CEM) Certification Program is or will soon be in effect for Resident Engineers and Office Managers. More information may be found at: http://www.dot.utah.gov/main/f?p=100:pg::::1:T,V:526.

Dispute Resolution Review - #6

INDIVIDUAL SUBMITTALS ONLY

The Department is soliciting interest from **individuals** with experience in major highway design and/or construction projects for the purpose of establishing a pool of qualified individuals to serve in the Department's behalf as members of three-member Disputes Resolution Boards, for projects located throughout the State. It is anticipated that the Boards will meet periodically (3 to 5 times a year) for the duration of these contracts (2 to 3 years). A Board will be established for each contract. A different member may be selected for each Board. The selection of individuals to serve on these Boards will consider the following criteria: past experience, including major highway design and construction; experience with concrete and steel structures; geotechnical studies; contract disputes, arbitration or mediation; scheduling; availability within 72 hours; and individual expertise. The selected board member will be required to enter into a three-party agreement with the Department, the Contractor, and the Board. The Department desires that Consultants be experienced with the type of construction and/or design involved in the project, interpretation of contract documents, and resolution of construction disputes. It is also imperative that the Consultant be neutral, act impartially, and be free of any conflicts of interest. Disclosure statements will be required before a Consultant is selected. Each statement shall include a resume of experience, together with a declaration describing all past, present, and anticipated or planned future relationships, including indirect relationships through the prospective members primary or full-time employer, to this project and with all parties involved in the Contract, including subconsultants or subcontractors, design professionals, and Consultants. The objective of this discipline is to qualify Consultants or individuals to consider, fairly and impartially, any disputes referred and to provide written recommendations to the Department for resolution.

Environmental/NEPA Document Preparation - #7

(Sub-Categories Need to Include All Criteria on Page 14)

This category of work provides environmental services for proposed transportation projects. Consultants must be able to document their ability to successfully conduct environmental services, such as those listed.

As this Work Discipline has Sub-Categories, the maximum number of pages is seven. In addition, the Consultant needs to identify in the Introduction Letter which sub-categories they are interested in being considered for.

Environmental Document Preparation – Environmental Assessment

Consultants performing services needed to prepare National Environmental Policy Act (NEPA) and Section 4(f) Evaluation documents for Environmental Assessment, UDOT: Environmental Process Manual of Instruction, Federal Register 23CFR771 (Federal Register August 28, 1987), FHWA Technical Advisory T6640.8A (October 30, 1987) and other applicable Federal, State, and local laws, regulations, Executive Orders, and guidance. Areas of study for all NEPA or state-funded environmental studies may include: historic, archeological, Paleontological, hazardous waste, public involvement, noise, wetlands, flood plains, wetland mitigation and stream alteration permitting issues, air quality, prime unique farmlands, endangered species, secondary and cumulative impacts, Environmental Justice, and assisting FHWA as needed in Tribal consultation.

Environmental Document Preparation - CATEX

Consultants performing services needed to prepare National Environmental Policy Act (NEPA) and Section 4(f) Evaluation documents for Categorical Exclusions (CATEX) and state-funded environmental studies must be familiar with UDOT's Design Process, UDOT: Environmental Process Manual of Instruction, Federal Register 23CFR771 (Federal Register August 28, 1987), FHWA Technical Advisory T6640.8A (October 30, 1987) and other applicable Federal, State, and local laws, regulations, Executive Orders, and guidance. Areas of study for all NEPA or state-funded environmental studies may include: historic, archeological, Paleontological, hazardous waste, public involvement, noise, wetlands, flood plains, wetland mitigation and stream alteration permitting issues, air quality, prime unique farmlands, endangered species, secondary and cumulative impacts, Environmental Justice, and assisting FHWA as needed in Tribal consultation.

Air Quality

Consultants performing air quality analyses on transportation projects must be familiar with the Clean Air Act Amendments of 1990, the UDOT planning process as it relates to regional conformity and project level conformity, the Long Range Plan (LRP) and Transportation Improvement Plan (TIP). Air Quality analyses will address all criteria pollutants applicable to the geographic area of the proposed project. Analyses may be required for ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, Mobile Source Air Toxins (MSATs), and other constituents as required by the project. For quantitative analyses of carbon monoxide, consultants will use emission factors generated by the latest emissions model and the latest version of the CAL3QHC source dispersion model. Analyses of particulate matter will be consistent with the latest recommendations and methodologies distributed by the EPA. For a given project, consultants will describe current conditions, potential impacts due to a project in the projected design year and potential impacts of the no-build scenario for the design year. Consultants will analyze potential project impacts, develop possible mitigation strategies, develop conclusions, and provide a written report for possible inclusion in an environmental document.

Archaeology/Ethnography/Paleontology

The Department is seeking to retain cultural and fossil resources management services throughout the state.

Cultural resource services include: 1) identification and documentation of archeological sites (prehistoric and historic) and isolated finds; 2) traditional cultural properties inventory and documentation; 3) recommendations of National Register of Historic Places eligibility for documented resources; 3) development and implementation of testing plans and data recovery plans; 4) monitoring of documented resources; and 5) assistance with Native American consultation. At a minimum, consultants must be familiar with Section 106 of the NHPA, Section 9-8-404 Section 63-73-19 of the Utah Code Annotated (U.C.A.)

Consultants will be required to follow the UDOT Guidelines for Archaeological Survey and Testing. Consultants will need to demonstrate methods and procedures for survey and inventory, which minimally include: 1) permits and coordination; 2) scheduling; 3) team composition and qualifications; 4) literature records searches; 5) methodology for inventories; 6) site documentation to state and federal standards; and 6) National Register of Historic Places eligibility recommendations. Consultants will need to provide specialists in lithic, ceramic, faunal, paleobotanical, historic artifact, and geoarchaeological analysis for testing and data recovery projects. These specialists should be able to demonstrate currency with up-to-date research and analytical methods and topics. Other potential specialists for data recovery will require identification at the development of the data recovery plan. Consultants may be required to provide an electronic file of the GPS locations and/or shape files in ArcView/ArcGIS format for both cultural and paleontological resources.

Fossil resource services include: 1) written literature search request to the State Paleontologist; 2) inventory, documentation, significance evaluation, and mitigation of fossil resources by a qualified paleontologist; and 3) fossil resource monitoring by a qualified paleontologist.

Consultants must be able to acquire (and are responsible for doing so) all necessary state and federal archeological and fossil survey and data recovery permits to work on all lands within the state of Utah. These include, but are not limited to, UDOT Field Authorization, UDOT Encroachment Permit, Utah Archaeological Survey Permit, and Utah Archaeological Excavation Permit.

Historic Architecture

The Department is seeking to retain qualified architectural historians or architects for the inventory, documentation, and evaluation throughout the state of buildings, sites, and properties other than archeological for the purpose of compliance with federal and state regulations, such as Section 106 of the National Historic Preservation Act (NHPA), Section 4(f) of the DOT Act of 1966, and Section 9-8-404 of the Utah Code Annotated (U.C.A.). Architectural historians or architects must meet the following qualifications: 1) A graduate or undergraduate degree in architectural history, historic preservation, or closely related field, with coursework in American architectural history; or 2) At least two years of experience in research, writing, or teaching in American architectural history with an academic institution, historical organization or agency, museum, or professional institution; or 3) must have demonstrated proficiency and experience in inventory and documentation (RLS, ILS, National Register nominations) in accordance with Utah State Historic Preservation Office standards.

Consultants must have proficiency and experience in the following areas: 1) Inventory and documentation with reconnaissance-level and intensive-level surveys; 2) a knowledge of survey methodology and the available resources to undertake such surveys; 3) understanding of National Register of Historic Places eligibility criteria; 4) ability to complete National Register of Historic Places nominations and multiple property nominations.

All consultants will be expected to submit inventories and documentation in accordance with Utah State Intensive Level Survey, Utah State Reconnaissance Survey procedures, and UDOT requirements. The consultant may be required to submit electronic site documentation (Access database). The consultant may be required to submit mitigation documentation for the Historical American Buildings Survey (HABS) and Historic American Engineering Record (HAER) in accordance with the Secretary of the Interior's Standards for History. The consultant's team should include a photographer qualified in large format photography and drafting specialists.

Biological/Wildlife

Consultants performing wildlife analyses must have at minimum a Bachelor of Science degree in wildlife biology, or a related field, plus 5 years of experience. The wildlife analysis should include a description of all ecosystems (flora and fauna) in the project area. This should include an assessment of current conditions and trends, and any environmentally sensitive features and sensitive wildlife species (flora and fauna), including State sensitive species, and federally listed Threatened, Endangered, or Candidate species, and/or their Critical Habitats within a mile radius of the project area. This analysis should identify wildlife migration patterns, wildlife connectivity and linkage areas, and fish passage, and include wildlife/vehicle collision data from UDOT's Traffic and Safety database. For each project alternative (including the no action alternative), consultants will describe impacts to wildlife, including documentation of the methodologies used in evaluating impacts. They will provide an analysis of projected impacts for affected species, provide a comparison of project alternatives and their impacts and describe in detail the potential measures that could be taken to mitigate these impacts. For Threatened, Endangered, and Candidate species, and their Critical Habitats, all Formal and Informal Section 7 Consultation with the U.S. Fish and Wildlife Service will be coordinated with the UDOT Wildlife Biologist.

Noise and Vibration

Consultants performing traffic noise analyses on transportation projects must be familiar with the latest version of the FHWA Traffic Noise Model. Consultants must have the ability to conduct field noise measurements using an industry standard sound level meter and to use the field noise measurement data along with other data needed to run the current TNM model and interpret the results. Consultants must also be familiar with the current UDOT Traffic Noise Abatement Policy and the FHWA noise abatement procedures and standards contained in 23 CFR 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise". For a given project, consultants will describe existing traffic noise levels, document projected traffic noise levels in the design year for the build alternatives, analyze potential noise impacts, develop possible mitigation strategies, prepare a cost analysis of possible mitigation efforts, and provide a written report. Consultants performing construction or post-construction vibration analyses on transportation projects must be proficient in conducting vibration monitoring, compiling data and have the ability to make sound engineering conclusions and judgments as to the effects of vibration on surrounding structures. The consultant will be expected to have knowledge of soils, including the local geologic formations, to formulate an expert engineering opinion on construction activities and design-year vehicle movement on these soils as they relate to vibration effects on surrounding structures. These analyses may include the effects of pile driving, heavy truck traffic, or other potential sources of vibration. Consultants will analyze potential project vibration impacts, develop possible mitigation strategies, develop conclusions, and provide a written report

Wetlands

This category of work provides services to ensure transportation projects are in compliance with Section 404 of the Clean Water Act. Consultants must be capable of following the regulatory process established by the Army Corps of Engineers in providing the following work:

- Wetland Delineations: Perform wetland delineations and develop reports using the 1987 Corps of Engineers Wetland Delineation Manual or the new Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region and follow the Minimum Standards for Acceptance of Preliminary Wetland Delineations established by the Sacramento District.
- Wetland Functional Assessments: Perform wetland functional assessments using UDOT's Wetland Functional Assessment Method.
- Permit Application Process: Prepare complete Nationwide or Individual permit applications that include avoidance/minimization measures, alternative analyses where appropriate, and compensatory mitigation. Follow the most recent Habitat Mitigation and Monitoring Proposal Guidelines prepared by the Sacramento District and coordinate efforts with UDOT and the Corps Utah Regulatory Office.
- Plans and Specifications: Prepare detailed construction plans (grading and re-vegetation) and specifications for the creation, restoration or enhancement of wetland mitigation sites.

Consultants must be familiar with all regulatory laws, procedures, guidance letters and permits and have expertise in the natural sciences, (e.g. biology, hydrology, botany, etc.).

Geotechnical/Hydrogeology - #8

This category of work involves different aspects of geotechnical engineering including:

- Geotechnical Investigations (borings, CPT, test pits, geoseismic, etc.)
- Geotechnical Laboratory Testing
- Geotechnical Design (bridge foundations, retaining walls, slope stability, settlement, rock cut design, landslide mitigation, etc.)
- Pile Driving Analysis (PDA)

The services may be for the complete geotechnical design of a project or for one or more specific geotechnical tasks. Work shall be performed in accordance with UDOT's Design Process Activities: 22D, 23D, 24D, 85D, 86D, 87D, 97D, 98D, and 99D. The driller and CPT unit shall be able to provide exploratory holes in locations with difficult access requiring all terrain equipment. The driller shall be capable of collecting soil samples and rock cores common to the geotechnical practice in accordance with AASHTO and ASTM standards. The CPT unit shall conduct soundings according to the same standards. Provide all equipment and personnel necessary. Project support during construction may also be required. This may include activities such as foundation inspections, settlement monitoring, WEAP analysis and PDA. The Pile Driving Analysis consultant shall provide full Pile Driving services including driving analysis of pile types and sizes common in UDOT construction. Interpretation of analysis will include signal matching (CAPWAP) capability. The services shall also include all equipment and personnel necessary. All inclusive design services shall be in accordance with all AASHTO requirements and the UDOT Geotechnical Manual of Instruction.

Hazardous Assessments/Waste Assessment and Remediation - #9

Consultants qualifying for expertise in this field must be environmental professionals, 40 hour OSHA trained (current), trained in environmental site investigation techniques, certified by Utah

Department of Environmental Quality (DEQ) to investigate and sample hazmat sites, have performed environmental site investigations where hazardous materials were found and/or discovered, be familiar with current US EPA regulations including (but not limited to) RCRA, CERCLA and SARA, OPA, CWA, CAA, NEPA requirements for Hazmat discovery, and state-adopted/delegated authority for same. Consultant must also become familiar with local jurisdiction requirements for reporting, removal and disposal on UDOT projects statewide. Level of site investigation will generally be phased, following ASTM Phase I and II guidelines. Consultant will conduct historical research in corridor that will include, but not be limited to DEQ records search. Discoveries are reportable, by law, to DEQ following full report to project manager/environmental manager. Consultant may work with UDOT Right of Way agents and advise whether whole or partial property purchase is feasible. Consultants will analyze potential project impacts, develop possible remedial alternative, develop conclusions and provide a written report for possible inclusion in an environmental document. Hazardous Waste Contractors will obtain from local and state authorities the necessary permits for removals and disposals. All employees of contractor working in remediation phase of project must be current with 40-hour OSHA training. Contractor must provide estimate of costs and disposal fees. Contractor will be required to report discoveries to DEQ following full report to project manager/environmental manager. Contractor should work closely with an environmental consulting firm if it does not have in-house capability.

Intelligent Transportation Systems (ITS) & Sub-Categories #10

(Sub-Categories Need to Include All Criteria On Page 14)

Intelligent Transportation Systems are defined as the application of advanced computing and communication technologies in transportation. Projects require expertise in telecommunication, system integration, field installation and testing of hardware and computers, project management, systems analysis, plan review, construction inspection, and operations.

As this Work Discipline has Sub-Categories, the maximum number of pages is seven. In addition, the Consultant needs to identify in the Introduction Letter which sub-categories they are interested in being considered for.

Sub-Categories include:

Planning and Analysis

Consultant(s) qualified in this sub-category will:

1) Assist with needs analysis, system planning and programming.
2) Develop or update system architectures.
3) Analyze business impacts of implementing new technology or major system changes and prepare reports documenting alternatives.
4) Recommend methods or assist in quantitatively measuring and analyzing system performance.
5) Conduct Benefit/Cost studies

Project Development, Design, and Oversight

Consultant(s) qualified in this sub-category possess knowledge, skills and abilities such as:

1) Knowing the design requirements for a UDOT plan set.
2) Experience using Micro-station/Inroads and Electronic Program Management (ePM)
3) Understanding UDOT's requirements for CADD and UDOT specifications
4) Understanding the Department's project advertising process

5) The ability to interpret designs and identify corrections to State furnished plans
6) Have a thorough knowledge of current UDOT ITS (ATMS) specifications, HCM, AASHTO Design Guide, MUTCD, and Roadside Design
7) Current certification or proven experience in inspection and QA/QC of projects
8) Current licensing with the State of Utah as Professional Engineers, Contactors, Master Electricians, Electricians, and Electronics Technicians (IMSA Level I,II,III).

Consultant(s) qualified in this sub-category will:

1) Prepare project alternatives analyses and concept reports.
2) Analyze and prepare scope documents.
3) Prepare design plans for construction.
4) Review and redline plans and construction specifications for compliance and consistency with ITS standards, specifications, and architecture.
5) Provide construction oversight including inspection, QA/QC, and engineering interpretation of plans.

Installation and Testing of Field Equipment

Consultant(s) qualified in this sub-category possess knowledge, skills and abilities such as:

1) A thorough working knowledge of ITS Devices.
2) Knowledge of telecommunications devices and associated software
3) Experience installing, testing, and troubleshooting IP/Ethernet communications, fiber, copper wire, and wireless communications.
4) Current certification in Outside Plant and Inside Plant practices and techniques.
5) The ability to perform site surveys, license frequencies, and establish continuous communications between field devices.
6) Understanding and experience with NEMA code

Consultant(s) qualified in this sub-category will install, program and test a variety of field devices including:

1) Video cameras
2) Variable message signs
3) Traffic monitoring stations
4) Highway advisory radios
5) Road weather information/environmental sensing systems
6) Communications hardware
7) Traffic signal controllers
8) Vehicle detectors
9) Pre-emption systems

Integration of Field Equipment

Consultant(s) qualified in this sub-category possess knowledge, skills and abilities such as:

1) Understanding and experience interfacing field devices through communications protocols
2) Ability and experience updating firmware, software and systems in the field
3) Understanding and experience with configuration management
4) Experience installing, testing, and troubleshooting IP/Ethernet communications, fiber, copper wire, and wireless communications

The Consultant will configure and perform end-to-end integration of field equipment, communications, and central control. (i.e. firmware, protocols, terminal server and Ethernet switches) to include:

1) Troubleshoot integration issues between field devices and central software
2) Provide assistance in integrating and debugging equipment
3) Establish continuous reliable communications - providing network and communication solutions to identified problems
4) Design graphics of signalized intersections for centralized software
5) Update central software user interfaces, configuration and databases
6) Provide as-built splice details and outside plant data for updating UDOT's fiber configuration database
7) Complete acceptance testing for operations and maintenance.

Technology Implementation

Consultant(s) qualified in this sub-category possess knowledge, skills and abilities such as:

1) Understanding and experience with the principles of systems engineering
2) Knowledge and familiarity with the current National ITS Architecture Standard
3) Understanding and experience implementing IP/Ethernet communications, fiber, copper wire, and wireless communications in complex systems
4) Knowledge of current and future developments in ITS technology including products that are new, under development, or in research
5) Understanding and experience with UDOT ITS standards and specifications
6) Knowledge and understanding of successful and unsuccessful technology deployments related to transportation applications

Consultant(s) qualified in this sub-category will:

1) Review, create and update UDOT ITS standards and specifications.
2) Develop equipment procurement specifications, RFPs, and contracts.
3) Develop RFPs and on-call repair contracts.
4) Review and recommend approval/changes on national standards.
5) Research and evaluate new technology, hardware, and software and prepare written reports.
6) Prepare technical reports on alternatives to solving needs through new technology or major system changes.
7) Train UDOT staff.

Landscape Architecture - #11

This category of work provides services to ensure transportation projects respond to the context in which they are constructed by providing design solutions that are in harmony with the surrounding environment and the community setting. Consultants providing work under this category must be licensed Landscape Architects, have a working knowledge of roadway engineering principles, and be capable of providing the following work:

1) Understand natural systems as they relate to roadway projects and develop design solutions to minimize roadway impacts by providing erosion control, grading, and re-vegetation plans.
2) Recognize the context of transportation projects in manmade or urban environments and develop design solutions that enhance visual quality by integrating design elements into structural components, roadside plantings, and streetscapes. Establish design themes that unify highway elements and incorporate community interests.
3) Perform site analyses and visual assessments and provide CADD drawings for

landscape, re-vegetation, site design, irrigation, grading, and erosion control plans, and accompanying specifications for various transportation projects.

Major Hydraulic Design - #12

Statement of Qualifications shall provide sufficient detail to demonstrate familiarity with UDOT's Hydrologic & Hydraulic analysis & design procedures and qualifications of the personnel to perform the requested services in the areas listed below.

Work within this category is related to assisting in UDOT's overall infrastructure management efforts and may include small to large projects, or individual tasks. Specific services may include but are not limited to Hydrologic studies, Hydraulic studies, bridge inspection, STIP Planning, cost modeling, database enhancements, training, minor plan package development, and technical support. The services shall include all equipment and personnel necessary to complete the required tasks.

Materials Testing - #13

Scope:

This category of work is defined as the inspection and testing of construction materials to ensure that work is in conformance with a project's plans and specifications, including the UDOT Materials Manual of Instruction, UDOT Minimum Sampling and Testing Requirements and FHWA eligibility requirements. This work will be as a supplement to the work performed by Department personnel on UDOT projects, or as principle testing facility for Local Government projects.

Testing will be performed in the disciplines of Hot Mix Asphalt, Asphalt Binder, Portland Cement Concrete and Soils. Submitting firms must identify which disciplines they wish to work in.

Qualifications:

Statement of Qualifications shall provide sufficient detail to demonstrate familiarity with UDOT's materials sampling & testing procedures, capability of the materials testing laboratory, and qualifications of the personnel to perform field and laboratory sampling & testing services in the appropriate disciplines.

A firm's personnel listed in Statement of Qualification must be UDOT TTQP certified in each discipline in which they will be conducting materials sampling and testing. UDOT provides certification in the following areas: Embankments and Base, In-place Density, Asphalt, Fresh Concrete, Concrete Strength Testing, Aggregates, Sampling and Density, General Laboratory and SuperPave Mix Design.

Testing Laboratories must have a permanent lab facility located within the state of Utah. Testing Laboratories shall be qualified through the Central Materials Division's Laboratory Qualification Program (LQP) and be listed on the UDOT Materials Division web page as a qualified laboratory.

UDOT qualified labs are required to be AMRL accredited in the AASHTO and ASTM tests listed below, based on submitting discipline. Testing Laboratories must be able to perform the remainder of test methods (UDOT Manual of Instruction) listed below which are not covered by AASHTO accreditation:

Hot Mix Asphalt

AASHTO: T30, T110, T164A, T166, T168, T170, T209, T230, T245, T269, T275, T287, TP4, PP2, PP19, PP28, MP2.
ASTM: D979, D2726, D2950, D3549, D3665, D3666, D4561, D5506, D6307, E1274.
UDOT MOI: 941, 945, 946, 950, 954, 957, 958, 960, 981, 982, 983, 995.

Hot Mix Asphalt Aggregate

AASHTO: T11, T19, T21, T24, T27, T84, T85, T96, T104, T112, T195, T242, T255, T278, T279C, T283, TP33.
ASTM: D4791, D5821.
UDOT MOI: 929, 930, 935, 984.

Portland Cement Concrete

AASHTO: T22, T23, T26, T97, T119, T121, T141, T152, M157 A1, T199.
UDOT MOI: 974.

Portland Cement Concrete Aggregate

AASHTO: T11, T19, T21, T24, T27, T84, T85, T96, T104, T112, T195, T255, T283.

Soil

AASHTO: T87, T88, T89, T90, T99D, T100, T176, T180D, T191, T193, T208, T215, T216, T234, T236, T238, T239, T265, T288, T289, T290, T291.
UDOT MOI: 919.

UDOT Qualified labs are also required to maintain a current Quality Systems Manual (QSM) with information regarding personnel qualifications, equipment calibrations and QC/QA practices and procedures for ensuring proper sampling, testing and reporting procedures are followed.

All pool-qualified Consultants desiring to provide Materials Testing services to the Department and/or Local Government may be required to provide the following prior to being selected for a project:

1) Current AMRL Accreditation Documentation
2) Conference Attendee Verification.

Failure to comply with project contract requirements may result in removal from materials testing pool.

Minor Structure Design - #14

Provide engineering services to design, study, analyze, or review minor structures of various types and sizes that may be required for analysis of box culverts, other culvert types, retaining walls, overhead sign structures, structures required for ITS functions on a highway project or engineering study. The designs shall be done in accordance with the applicable UDOT, Local Government, AASHTO, State and Federal requirements.

Partnering Facilitation - #15

The Department is seeking interested firms or Individuals capable of providing Partnering workshop facilitations. Firms must conduct facilitations according to the Utah Department of Transportation / Utah Association of General Contractors Partnering Field Guide. Facilitators must complete the Phase 1 Partnering Training provided by the Utah Department of Transportation. Facilitators will only be added to the UDOT Partnering Facilitators list when

they have completed UDOT's Phase –1 Training. Partnering requires on-going commitment. Follow-up workshops may be held as agreed by the Contractor and Engineer.

Pavement Design - #16

Qualifications:
Statement of Qualifications shall provide enough detail to demonstrate experience with the AASHTO 1993 Pavement Design Manual or UDOT Pavement Design Manual. Work will be performed by or supervised by a registered professional engineer, including collection of data, analysis of existing pavement and identification and selection of alternatives.

Consultant must have the capability (or acquire services) to perform sampling and in-situ and laboratory testing of existing subgrade or base materials. Sampling and testing must be performed by a UDOT-qualified laboratory using UDOT-qualified technicians.

Scope of Work:
Designs will be performed in accordance with the UDOT Pavement Management and Design Manual. Each design shall consist of traffic calculations, material coefficients, structural numbers and Life Cycle Cost Analysis.

Traffic data, FWD data and geometric constraints may be supplied by UDOT. Data collection by the consultant may include traffic data, existing soils characteristics, historical climatic information, current pavement FWD and distress data, proposed layer material characteristics and LCCA cost inputs. This data shall be used to design new, reconstructed, or rehabilitated pavement structures.

Any requests for deviations from standard UDOT coefficients shall be identified with reason for their adjustment. All submitted designs shall be bound and sealed by a Professional Engineer licensed in the State of Utah.

Life Cycle Cost Analysis shall be consistent with the practices of the UDOT Pavement Management and Design Manual or FHWA RealCost software, or similar.

If a designer wishes to use other methods for pavement design, besides the UDOT Pavement Management and Design Manual, they can submit a request to the Region Pavement Design Engineer. Some methods include AASHTO 1993 practices, Mechanistic/Empirical practices, Asphalt Institute practices or others.

Planning - #17

This category of work may consist of performing a varied array of transportation planning activities to assist UDOT in determining Utah's future mobility needs and shaping the future transportation system today. Plan recommendations from studies will be used in UDOT's long-range plan system mobility needs, prioritized, and fiscally phased. The consultant may be asked to evaluate existing and future conditions of the state transportation system using forecasting, operational analysis and geographic information systems. Evaluation techniques, methodologies, and software should be consistent with UDOT's systems, state-of-the-practice, or approved by UDOT. Included in this planning category are data collection, Travel Demand Modeling, Simulation/visualizing, design traffic, GIS, Corridor Planning, corridor operations, alternatives analysis, planning level environmental constraints identification, cost determinations, Access Management Agreements, Asset Management evaluations, Community

Impact identification, Public Involvement, Bicycle and Pedestrian Planning, Freight Planning, database manipulation, local government coordination and training services.

The Consultant will be required to perform studies managed by Planning staff, augment UDOT Planning Staff with expertise for planning areas described above, develop reports and document studies findings and recommendations. The Consultant may participate in corridor studies, corridor operations analysis, NEPA related documents, the UDOT's long-range plan, intersection operations analysis, level of service analysis, and UDOT's efforts to link Planning to NEPA. These studies may involve individual modes or a combination of modes; Hot Lane, HOV, Toll, Transit, Travel Demand Management, Transportation System Management.

The Consultant may be asked to research or provide state-of-the-practice training to UDOT's planning staff on Travel Demand Modeling, Simulation/visualizing, design traffic, GIS, alternatives analysis, planning level environmental constraints identification, cost determinations, Access Management Agreements, Asset Management evaluations, Community Impact identification, Public Involvement, database manipulation, development of design traffic, traffic modeling, simulation, capacity analysis, GIS, and environmental processes.

Preconstruction Engineering - #18

This category of work is all encompassing. Consultants may provide a variety of engineering services including the personnel resources, equipment and materials necessary to prepare contract plans, specifications, and estimates or any part(s) thereof in accordance with UDOT's Design Process for each project as defined in the applicable contract. Consultants selected for contracts for this Pool Discipline, will be responsible for providing a quality product. As part of the submitted SOQ, address the QC/QA program that the Consultant will utilize to ensure the quality of the plans, specifications and estimates produced.

Although this work discipline is all encompassing, the Department recommends qualified Consultants submit Statements of Qualifications in the other work disciplines they are qualified for. If there is a specific work discipline that is appropriate for a project, the Preconstruction Engineering Work Discipline may not be used. For example, if the project is for bridge design, the Consultant must be qualified for that work discipline and not be selected from the Preconstruction Engineering Work Discipline.

Public Involvement – Operations/Project/NEPA - #19

The Department is seeking firms or individuals that are capable of providing **public involvement and/or public relations services pertaining to UDOT projects, programs and initiatives, as well as for services related to operational public involvement issues and needs**. Services may be required at locations (regions/projects) throughout the State. Individuals and firms should have experience applying and knowledge regarding the following: The surface transportation industry; civil engineering processes and techniques (highway/road building, design, construction management); environmental policies, processes and issues; project/contract management; context sensitive solution opportunities; local government processes, activities and personnel; basic communication and public relations techniques including the administration and analysis of public opinion research, and excellent writing skills; media relations strategies; public involvement and/or awareness/outreach campaign development tools and techniques, strategies, tactics and implementation; grassroots promotion of project and Departmental goals and messaging; special event coordination, publicity and management; committee development and management; partnering skills to obtain group

consensus; public meeting and public hearing organization and facilitation; Website development and maintenance; software programs used to develop publications and graphics.

Research Studies/New Development - #20

The primary focus of the Research Division is to provide problem solving and technical enhancements in areas of concern identified in the "Utah Department of Transportation Strategic Direction". UDOT has a strong tradition of using research to further the goals of the department and is therefore seeking individuals or firms that can assist them.

The Research Division conducts transportation related studies in the following technical and business related areas:

Structures	Materials
Geotechnical	Hydraulics
Intelligent Transportation	Roadway Design
Pavements	Environmental
Maintenance	Safety
Construction	Administration
Planning	Customer Satisfaction
Data Collection	Traffic
Roadway Condition Data Collection	

The Department is interested in contracting with firms or individuals who can carry out specific research tasks, perform analysis on the data gathered, and create the needed deliverables (reports, training, manuals, etc.) related to these research projects.

Right of Way Engineering - #21

Provide engineering services to survey, develop, check, review and certify documents, prepare Right of Way plans and descriptions for parcels associated with proposed construction in accordance with the applicable Mapping and Aerial Photogrammetry Guidelines (latest edition), UDOT and FHWA procedures.

Note: This category does not include Right of Way Services such as: Appraisal, Appraisal Review, Acquisition, Lead Agent, or Relocation. There is a separate Pool for these Right of Way Services. Please contact **Karen Stein,** Deputy Director of Right of Way at **(801) 965-4057** for more information.

Schedule Analysis and Claims Review - #22

Consultant needs to have expertise in claims avoidance and mitigation. This includes but is not limited to expertise in:

1) Reviewing construction baseline schedule analysis for reasonableness. This means that the consultant must be able to review an initial schedule to ensure compliance with the contract and for the reasonableness of activity durations and relationships.
2) Reviewing construction progress schedules for accuracy and to identify deviations from plans. The most important aspect of this review is to identify:
    - Deviations from the baseline plan and the previous update.
    - The causes of the deviations.
    - Responsibility for the deviations.
    - The impact of the deviation to the project plan and budget.
    - Potential solutions to the problems.

3) Identifying potential construction problems early enough to minimize the impact of the problem.

The consultant will also need to be able to provide training to Department personnel on claims avoidance, schedule and document management, and Primavera software training; including the setup of an effective planning system.

When a claim is submitted, the consultant needs to have expertise to assess:
1) The validity of the claim.
2) The time and dollar impact of the claim.
3) The Department's risks if the cast proceeds to arbitration or court.

Overall, the consultant needs to be able to provide services that help the Department minimize claims through effective schedule and document management; to assess the impact of claims submitted; to assist with claims negotiations; and to assist the Department in preparing and presenting the claims to a dispute review board or in court.

Consultants do not need to meet all of the above criteria. Consultants may be selected to meet specific needs within the requirements listed above.

Subsurface Utility Engineering (SUE) - #23

The Consultant shall be able to provide Subsurface Utility Engineering services for various projects:

1) **Designating Services** - Designating means to indicate, by qualified personnel, the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control, in accordance with ASCE Guideline 38-02. Must be able to certify accuracy to within +/- 1-foot horizontal tolerance.

2) **Locate (Test Hole) Services** - Locate means to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that ensure the integrity of the utility facility by qualified personnel, in accordance with ASCE Guideline 38-02. Must be able to certify accuracy to within +/- 0.1 foot horizontal and vertical tolerances.

3) **Data Management** - All work shall be processed and output provided in the current versions of MICROSTATION and BENTLEY CADD programs, unless otherwise approved by the Project Manager, and in the current UDOT drafting standards. A final SUE report shall be submitted at the completion of each work order in a Microsoft Excel file as well as hard copy.

4) **Certifications and Personnel** - All submitted SUE work shall be signed and sealed by a professional engineer licensed in the State of Utah. The Consultant or it's staff members who directly working on the project, shall demonstrate not less than 4 years experience working directly on SUE projects and data collection.

Surveying/Mapping - #24

Provide surveying services on engineering projects on an as-needed basis under the direction of the Department's representative. Survey work may include any or all of the following: alignment, horizontal and vertical control, level surveys, cross-sectioning, topographical surveys, property description searching, locating and surveying section corner searches, survey title work, clearing easements, etc. Surveying services shall meet the requirements of the Mapping and Aerial Photogrammetry Guidelines (latest edition).

Traffic Signals / Roadway Lighting & Sub-Categories - #25

(Sub-Categories Need to Include All Criteria On Page 14)

This category of work provides services for design, construction inspection, and construction maintenance support for traffic signal and roadway lighting projects. The design sub-category includes design of new traffic signals or modification to existing traffic signals, and design of roadway lighting systems for intersections, interchanges, expressways, and freeways. The construction inspection and maintenance sub-category includes signal and lighting inspection support, signal timing and detection maintenance during construction of major roadway projects.

As this Work Discipline has Sub-Categories, the maximum number of pages is seven. In addition, the Consultant needs to identify in the Introduction Letter which sub-categories they are interested in being considered for.

Design

Provide engineering services to design warranted traffic signal and roadway lighting for new, modified, and upgraded locations. Design activities include:

- Site investigation
- Underground and overhead utility location
- Survey mapping
- Coordination with local utilities
- Geotechnical analysis when necessary or when specifying high mast lighting
- Context sensitive solutions in design
- Lighting analysis using AGI32 or equivalent lighting software
- Complete lighting design plans, circuit schematics, control details, and schedules
- Traffic analysis using simulation and capacity analysis software
- Cost/benefit approach to design solutions
- Complete signal design plans, circuit schematics, roadway plans, striping plans, interconnect plans, and schedules.

Perform activities per the UDOT design process and be capable of providing necessary design documents including the environmental study (CAT-EX), right of way plans, utility location plans, design exceptions, cooperative agreements, red-flag analysis, and complete advertisement package (engineer's estimate, construction plans, specifications, M&P). Base design on current State and Federal design standards including:

- MUTCD
- UDOT Standard Drawings and Specifications
- UDOT Signal Design Guidelines
- AASHTO Design Guide
- AASHTO Roadside Design Guide
- AASHTO Roadway Lighting Design Guide

- Highway Capacity Manual
- ITE Manual of Traffic Signal Design.

Submit completed project plans within established time frames, and be available to respond to questions during the design and construction phases of the project. Complete all project design plans per UDOT CADD Standards. Prepare bid documents in accordance with UDOT advertisement process. Provide accurate "Record Document" drawings of constructed projects.

Construction Inspection and Maintenance

Provide signal and lighting construction inspection and maintenance support during construction of major roadway projects. The Construction Inspection and maintenance activities include:

- Signal and lighting inspection
- Signal timing analysis and recommendations
- Field adjustments to timing plans under UDOT direction and approval
- Coordination of activities with UDOT Resident Engineer and Contractor
- Signal detection maintenance – controller level adjustments, video detection programming, temporary signal layout, cabinet wiring changes, and detection loop splicing.

Signal and Lighting Construction Inspection

Ensure signal and lighting projects are constructed per plan, specifications, and design standards listed above. Coordinate all inspection efforts with Resident Engineer assigned to the project, and the Region Signal Maintenance Supervisor. Signal and lighting inspection requires understanding of national standards and codes referenced in UDOT specifications including: NEMA, NEC, UL, AASHTO, and ANSI.

Consultant performing construction inspection duties must be a State Licensed Electrician, Licensed Electrical Engineer, Licensed Civil Engineer with Electrical Distribution experience, or qualified Electronics Technician with IMSA Level I, II, or III signal maintenance certification.

Signal Maintenance Support

Provide support and assistance to UDOT staff in making modifications and performing system maintenance functions to controller timing and vehicle detection systems. Signal Maintenance support requires a complete understanding of cabinet drawings, lighting plans, and field electronics equipment operations.

Consultant performing signal timing and detection maintenance must be a State Licensed Civil Engineer, Licensed Electrician or qualified Electronics Technician with IMSA Level I, II, or III signal maintenance certification. Consultant must successfully complete UDOT signal and lighting splice training and hold a valid certification. This activity also requires proficiency with electronic signal components used by UDOT including: Econolite, Eagle, and Peek controllers; various types of intrusive and non-intrusive vehicle detection; and utilizing signal timing software.

Follow UDOT guidelines and procedures, be available 24 hours a day, 7 days a week, 365 days a year. Respond within 12 hours of request from UDOT. Work closely with the Contractor and Resident Engineer to ensure quick and efficient response and proper

scheduling of needed changes. Changes to signal timing will be directed and approved by UDOT only.

Value Engineering - #26

Value Engineering studies may be required at one or more of the following project phases: Initial Concepts, Comparison of Alternates, or 30-40% Design. The Consultant will need to have the personnel required to provide a team leader and expert team members as needed to fill a mixed Value Engineering team of UDOT and consultant personnel. Selected Consultants may organize, staff and facilitate project specific Multi-Disciplined teams using competent personnel experienced in design, right-of-way, maintenance and operation of highways, bridges, public transportation, traffic operation and other related fields. The Consultant shall present the team staffing in its entirety for review and approval by the Department. All such submittals shall include a detailed description of work experience and credentials of each proposed team member. Selected Consultants will be required to establish project specific VE Quality Control Plan and Procedures. Objectives and Tasks may include: Preparation and Analysis, VE Study, Reports and Presentations.

The Consultant shall be responsible to ensure that all personnel proposed under this RFQ are qualified through training, experience, and appropriate certification for the tasks assigned and shall have a working knowledge of Department standard practices. Value Engineering Consultant Team Leader must either: (a) be a registered Professional Engineer having 5 years of experience in the planning, design, and construction of highways and bridges with sufficient VE training, education, and experience to be recognized by SAVE International as meeting the requirements for certification, OR (b) have a CVS certification with 10 years of experience in the planning, design, and construction of highways and bridges. Engineering Team Members will also need to meet the minimum specific personnel experience requirements in their respective areas on expertise: 1) Construction - 10 years in the supervision of major highway and bridge construction projects as project engineer or contractor's superintendent, 2) Design - Registration as a Professional Engineer and 10 years experience in the design of (a) highway projects (for studies primarily involving highway improvements) or (b) structures (for studies primarily involving bridges or retaining walls), 3) Maintenance - 10 years responsible charge of a major maintenance program of city, county or state transportation system, 4) Right-of-way - 5 years experience in R/W administration, land management, abstract and title work, sale, acquisition or appraisal of real-estate, of which 3 years must be Government related, 5) Other - Other experienced team members, such as drainage engineers, traffic engineers, geotechnical engineers, and other specialists may be required to provide a project specific team.

Visualization - #27

Visualizations may include two-dimensional (2-D) photo-simulations such as photographic renderings based on artistic interpretation, three-dimensional (3-D) photo montage-simulations based on existing and proposed digital terrain modeling, four-dimensional (4-D) urban/animated/real-time simulations based on motion within a virtual model, or other project related information.

Describe your capability to perform the work. Identify your ability to perform 2-D, 3-D, or 4-D graphical visualizations. Refer to the *Essentials of Visualization* below. Describe any unique qualifications you have to perform this type of work.

In addition to the standard SOQ requirements, an SOQ submittal for the Visualization Work Discipline will require an additional separate submittal. The submittal should be one copy of a

Video, CD, or DVD, with examples of your deliverables in 2-D, 3-D, or 4-D. The deliverables should be no longer than 5 minutes in total length. This submittal should be delivered to Gaye Hettrick at UDOT Engineering Services, 4501 South 2700 West, Salt Lake City, UT 84119 (4th Floor south side of the Calvin Rampton Building) by the deadline or the Consultant's Visualization Work Discipline SOQ will be considered non-responsive and will be disqualified.

Essentials of Visualization – The following definitions are provided for clarification purposes and to distinguish among various visualization components available.

2-D Graphics: Photo-simulations are simulations or images that are representative but may not be accurate. These are any static or 2-dimensional images that portray the spatial relationship of an object with three dimensions.

Renderings or Artist's Conceptual Simulation—either hand-drawn or prepared using a computer image that is created by drawing or "painting in" proposed new elements on a photographic image or video frame called a "base image" to generate a near photographic image of a proposed transportation feature. Base images can be converted from photographs by using a scanner or image capture boards for video. This process does not use *x*, *y*, *z* coordinate locations or digitally merging composite images.

Image Paint—a generic term used to characterize computer-based software (such as PhotoShop) that is used to create, modify, or edit digital images. Image editing has application in all 3-D image work and some application in frame-by-frame 4-D editing.

Note: It is very important to understand that painted or edited images by themselves are not based on geometrically accurate elements and that the resulting images may not truly reflect the actual final outcome of the transportation feature it portrays. The quality and level of realism achieved depends on the artistic skill of the artist and the quality of the base image used.

3-D Graphics: 3-D photo-simulations are simulations based on a photographic montage and 3-dimensional modeling of geographic elevation information with other associated pertinent information that is representative and accurate.

Composite Image Simulation—merging two or more images that have the same viewing station/location defined by *x*, *y*, *z* coordinates and perspective parameters. Composite static images most frequently involve merging photographic or video base images for which the camera location and settings are known and/or calculated. These are then merged or overlaid with a 3-D computer image that has been generated using the real world location and settings for the virtual camera (computer camera). In this process, the background image must be taken so that the geographic location parameter, the viewpoint, the camera settings, and the actual size of some of the objects in the image are known. This is very important in that when changes are introduced (proposed transportation features) they can be matched to provide geometrically and dimensionally accurate images.

A 3-D computer model is used to generate a perspective using the same coordinate camera location and camera settings as those of the original background or base image. These two images are then overlaid using control points to create the final composite image. This method provides the most visually correct, accurate, and defensible representation possible. With proficiency and care, the range of error is generally less than two percent. (Several other steps are also involved such as material definitions and material rendering to complete the final composite image.)

4-D Graphics: Urban simulations, animated simulations, and real-time simulations are simulations based on motion and/or real-time movement within a virtual model. Animated 4-D

incorporates a wide range of dynamic imagery in a series of 3-D images that are sequentially related in space and time. The time reference is defined as the fourth dimension.

Urban Simulation or “Real-Time” Simulated Graphics—the ability of a computer system to generate, display, and update images in a continuous rendering mode. Real-time provides complete movement within the virtual model without pre-selecting a specified path. Rendering occurs simultaneously as movement is performed.

4-D applications include:

Video: the unedited recording of existing site conditions using a video camera. Simulated Phase Change: the process of illustrating that occurs from an existing base image condition to the proposed composite image condition from the same viewpoint and saved as a video sequence.

Animation: sequence of composite images that when played at specific speeds will produce the illusion of motion.

Urban Simulation or “Real-Time” Technology: an innovative tool for interactive urban/transportation planning, consensus building, public education, and conflict resolution. Real-time simulation includes adaptable database management systems and an optimized desk top PC and web-enabled system configuration, all seamlessly integrated under a universal fourth dimension of time. Besides the common real-time 3-D interactive capabilities, real time provides the ability to control the fourth dimension of time and to integrate time-based intelligence with existing information databases, such as GIS and other IT systems.

Real-time applications are an ideal solution for visualizing dynamic transportation operations that are complex within changing environments. Additionally, real-time applications are extensible with the ability to associate information from databases (such as GIS and Oracle) with the 3-D graphic entities located within the visual database. This enables the user to identify and query an associated database for object attributes via “3-D object picking.” URLs and web-enabled applications can also be easily embedded with the 3-D graphic entities. This makes an effective decision support and knowledge management tool to serve the various needs of this undertaking.